

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-075948

(43)Date of publication of application : 26.03.1993

(51)Int.Cl.

H04N 5/45

(21)Application number : 03-169270 (71)Applicant : SHARP CORP

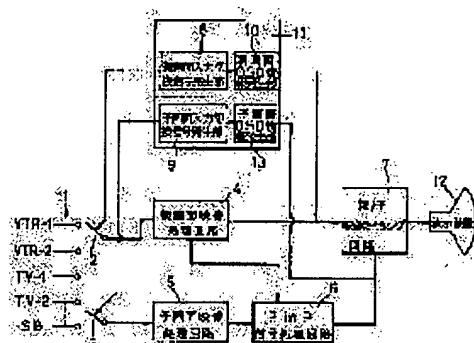
(22)Date of filing : 13.06.1991 (72)Inventor : KIMOTO SHINJI

## (54) IMAGE DISPLAY DEVICE

### (57)Abstract:

**PURPOSE:** To check an image displayed on a slave screen by displaying information corresponding to images displayed on a master screen and the slave screen on a part of a display screen by respectively independent display means.

**CONSTITUTION:** Information supplied from a slave screen input switching signal generating part 9 and corresponding to a source selected by a slave screen input selector 3 is outputted from a slave screen OSD information generating part 13. The information from the generating part 13 is superposed and mixed to/with an output from a PinP signal processing circuit 6 and the mixed signal is led to a display device 12. On the other hand, a master screen video signal from a master screen image processing circuit 4 is superposed to master screen OSD information outputted from a master screen OSD information generating part 10 and led into a master/ slave image mixing circuit 7. The circuit 7 mixes the master screen superposed signal with the superposed signal of the signal from the circuit 6 and the OSD information from the generating part 13 and leads and displays the mixed signal to/on the display device 12. Thereby which image is displayed on the slave screen can be checked by observing the display device.



## LEGAL STATUS

[Date of request for examination]

03.02.1995

[Date of sending the examiner's decision 17.06.1997  
of rejection]

[Kind of final disposal of application  
other than the examiner's decision of  
rejection or application converted  
registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's  
decision of rejection]

[Date of requesting appeal against  
examiner's decision of rejection]

[Date of extinction of right]

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CLAIMS

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[Claim(s)]

[Claim 1] The graphic display device characterized by establishing the 1st display means which displays the information corresponding to the image currently displayed on the parent screen on some display screens in the graphic display device it was made to display a child screen on a parent screen, and the 2nd display means which displays the information corresponding to the image currently displayed on the child screen on some above-mentioned display screens.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the so-called graphic display device of the picture . Inn . picture (henceforth "PinP") method which projects a child screen especially on some parent screens about the graphic display device used for a television receiver or VTR.

[0002]

[Description of the Prior Art] The thing of the PinP method with which graphic display devices, such as a television receiver, display a child screen on some parent screens with enlargement of a screen is spreading recently. In the graphic display device of this PinP method, there is much what has adopted the character display system (it is called "OSD" below on Screen Display ) which shows what the display information on a parent screen is.

[0003] Drawing 3 is the block diagram of equipment conventionally. this drawing -- setting -- 1 -- VTR-1, VTR-2, TV-1, TV-2, and ... the video-signal input terminal which inputs the video signal from the various sources, such as BS (satellite broadcasting service), -- 2 chooses which terminal of the above-mentioned video-signal input terminal 1 with the input change-over signal from the parent screen input change-over signal generator 8 of a microcomputer 11. The parent screen input selector which makes the source obtained from this selected terminal parent screen information, and 3 choose which terminal of the above-mentioned video-signal input terminal 1 with the input change-over signal from the child screen input change-over signal generator 9 of a microcomputer 11. It is the child screen input selector which makes the source obtained from this selected terminal child screen information.

[0004] The magnitude of the child screen where a parent screen image processing circuit and 5 are displayed on a child screen image processing circuit, and 4 displays 6 on a parent screen, The PinP digital disposal circuit which processes

the signal of a child screen with the location which makes a child screen superimpose on a parent screen, The parents / child image mixing circuit where 7 makes a child screen superimpose on a parent screen, the parent screen OSD information generating section which generates the information corresponding to the source as which 10 was chosen with the above-mentioned parent screen input selector 2 based on the input change-over signal from the parent screen input change-over signal generator 8 of a microcomputer 11, 12 is displays, such as the Braun tube.

[0005] Therefore, by the input change-over signal generated with the directions from the outside from the parent screen input change-over signal generator 8 of a microcomputer 11, and the child screen input change-over signal generator 9, each source chosen with the parent screen input selector 2 and the child screen input selector 3 is led to the parent screen image processing circuit 4 and the child screen image processing circuit 5, and processing of a video signal is performed. The output from the child screen image processing circuit 5 is led to the PinP digital disposal circuit 6. The magnitude of the child screen displayed on a parent screen from the above-mentioned parent screen image processing circuit 4 in this circuit 6 synchronizing with a synchronizing signal, And the location which makes a child screen superimpose on a parent screen performs signal processing of the video signal of a child screen, it leads to parents / child image mixing circuit 7 with the output from the parent screen image processing circuit 4, and parent-and-child both video signals are mixed in this circuit 7.

[0006] On the other hand, the information corresponding to the source chosen with the above-mentioned parent screen input selector 2 is led to the parent screen OSD information generating section 10 from the parent screen input change-over signal generator 8, and when the above-mentioned selector 2 has chosen two channels (TV-2) of a television signal, it outputs the information "2" corresponding to the source chosen as OSD information from the above-mentioned parent screen OSD information generating section 10. The OSD information from the parent screen OSD information generating section 10 is superimposed by the output from above-mentioned parents / child image mixing circuit 7, on a display 12, as shown in drawing 4 , it superimposes the image B of a child screen on the image A of a parent screen, and it displays it on a parent screen in the form which superimposed "2" which shows the 2nd channel of TV at the OSD information on a parent screen, i.e., here.

[0007]

[Problem(s) to be Solved by the Invention] Although it can be recognized by presenting of OSD information what screen a parent screen is when a child screen is made to superimpose and it displays on a parent screen in conventional equipment as mentioned above Since presenting of OSD information is not

performed about a child screen, when the user of a device is going to switch the channel of a child screen etc., etc., If it was TV moreover only the content of an image of a child screen will be understood and the content of an image will not be the thing or VTR of TV, which channel etc. was unknown and actuation of a child screen was inconvenient.

[0008]

[Means for Solving the Problem] This invention makes the configuration which established the 1st display means which displays the information corresponding to the image currently displayed on the parent screen on some display screens, and the 2nd display means which displays the information corresponding to the image currently displayed on the child screen on some above-mentioned display screens in the graphic display device it made display a child screen on a parent screen in order to solve the above-mentioned problem.

[0009]

[Function] According to the above-mentioned configuration, like [ image / which is displayed on the child screen ] a parent screen, since information, such as a channel corresponding to the image currently displayed, is displayed on a screen, the source of a child screen etc. can be checked on a display.

[0010]

[Example] Drawing 1 is the block diagram of one example of this invention, and the part corresponding to the conventional example shown in drawing 3 attaches the same sign, and omits explanation. The OSD information which 13 is the child screen OSD information generating section which generates the information corresponding to the input change-over signal supplied from the child screen input change-over signal generator 9 of a microcomputer 11, i.e., the information corresponding to the source chosen with the child screen input selector 3, in drawing 1 , and is derived from this child screen OSD information generating section 13 is led to parents / child image mixing circuit 7 with the output of the PinP digital disposal circuit 6. In addition, although the output of parents / child image mixing circuit 7 is overlapped on the output of the parent screen OSD information generating section 10, he is trying to superimpose the output of the parent screen OSD information generating section 10 on the output of the parent screen image processing circuit 4 in drawing 1 in the conventional example shown in drawing 3 .

[0011] Therefore, the information corresponding to the source chosen with the above-mentioned child screen input selector 3 supplied from the child screen input change-over signal generator 9 in a microcomputer 11 outputs the information "the video -1", or "BS" corresponding to the source chosen as OSD information from the above-mentioned child screen OSD information generating section 13, when it is led to the child screen OSD information generating section

13 and the above-mentioned selector 3 has chosen VCR-1 or satellite broadcasting service BS. The OSD information from the child screen OSD information generating section 13 is superimposed by the output from the PinP digital disposal circuit 6, and is led to parents / child image mixing circuit 7. [0012] On the other hand, the parent screen video signal from the parent screen image processing circuit 4 is superimposed with the OSD information on the parent screen from the parent screen OSD information generating section 10, is led to parents / child image mixing circuit 7, and it is mixed with the signal with which the child screen video signal from the above-mentioned PinP digital disposal circuit 6 was overlapped on the OSD information on the child screen from the child screen OSD information generating section 13 in this mixing circuit 7, and it is drawn and displayed on a display 12.

[0013] Consequently, as shown in drawing 2 (a) or (b), the OSD information "the video -1" or "BS" of the child screens B and C can be displayed on a display 12 with the OSD information on the parent screen A "2." Drawing 2 (a) is the example which displayed the OSD information on the child screen B "video -1" in the child screen, and drawing 2 (b) is the example which displayed the OSD information on the child screen C "BS" on the location near the child screen on a parent screen out of the child screen.

[0014]

[Effect of the Invention] Since the information corresponding to the image currently displayed about the child screen as well as a parent screen since this inventions are the above configurations can be displayed on a display, while a user can check what image the child screen projects, also when operating a channel change-over of a child screen etc., actuation of a child screen becomes easy.

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**TECHNICAL FIELD**

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## PRIOR ART

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[0003] Drawing 3 is the block diagram of equipment conventionally. this drawing -- setting -- 1 -- VTR-1, VTR-2, TV-1, TV-2, and ... the video-signal input terminal which inputs the video signal from the various sources, such as BS (satellite broadcasting service), -- 2 chooses which terminal of the above-mentioned video-signal input terminal 1 with the input change-over signal from the parent screen input change-over signal generator 8 of a microcomputer 11. The parent screen input selector which makes the source obtained from this selected terminal parent screen information, and 3 choose which terminal of the above-mentioned video-signal input terminal 1 with the input change-over signal from the child screen input change-over signal generator 9 of a microcomputer 11. It is the child screen input selector which makes the source obtained from this selected terminal child screen information.

[0004] The magnitude of the child screen where a parent screen image processing circuit and 5 are displayed on a child screen image processing circuit, and 4 displays 6 on a parent screen, The PinP digital disposal circuit which processes the signal of a child screen with the location which makes a child screen superimpose on a parent screen, The parents / child image mixing circuit where 7 makes a child screen superimpose on a parent screen, the parent screen OSD information generating section which generates the information corresponding to the source as which 10 was chosen with the above-mentioned parent screen input selector 2 based on the input change-over signal from the parent screen input change-over signal generator 8 of a microcomputer 11, 12 is displays, such as the

Braun tube.

[0005] Therefore, by the input change-over signal generated with the directions from the outside from the parent screen input change-over signal generator 8 of a microcomputer 11, and the child screen input change-over signal generator 9, each source chosen with the parent screen input selector 2 and the child screen input selector 3 is led to the parent screen image processing circuit 4 and the child screen image processing circuit 5, and processing of a video signal is performed. The output from the child screen image processing circuit 5 is led to the PinP digital disposal circuit 6. The magnitude of the child screen displayed on a parent screen from the above-mentioned parent screen image processing circuit 4 in this circuit 6 synchronizing with a synchronizing signal, And the location which makes a child screen superimpose on a parent screen performs signal processing of the video signal of a child screen, it leads to parents / child image mixing circuit 7 with the output from the parent screen image processing circuit 4, and parent-and-child both video signals are mixed in this circuit 7.

[0006] On the other hand, the information corresponding to the source chosen with the above-mentioned parent screen input selector 2 is led to the parent screen OSD information generating section 10 from the parent screen input change-over signal generator 8, and when the above-mentioned selector 2 has chosen two channels (TV-2) of a television signal, it outputs the information "2" corresponding to the source chosen as OSD information from the above-mentioned parent screen OSD information generating section 10. The OSD information from the parent screen OSD information generating section 10 is superimposed by the output from above-mentioned parents / child image mixing circuit 7, on a display 12, as shown in drawing 4 , it superimposes the image B of a child screen on the image A of a parent screen, and it displays it on a parent screen in the form which superimposed "2" which shows the 2nd channel of TV at the OSD information on a parent screen, i.e., here.

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**EFFECT OF THE INVENTION**

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[Effect of the Invention] Since the information corresponding to the image currently displayed about the child screen as well as a parent screen since this inventions are the above configurations can be displayed on a display, while a user can check what image the child screen projects, also when operating a channel change-over of a child screen etc., actuation of a child screen becomes easy.

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**TECHNICAL PROBLEM**

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**MEANS**

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**OPERATION**

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EXAMPLE

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] The block diagram of one example of this invention.

[Drawing 2] The explanatory view of this invention of operation.

[Drawing 3] The block diagram of the conventional example.

[Drawing 4] The example of a display of the conventional example.

[Description of Notations]

7 Parents / Child Image Mixing Circuit

10 Parent Screen OSD Information Generating Section

12 Display

13 Child Screen OSD Information Generating Section

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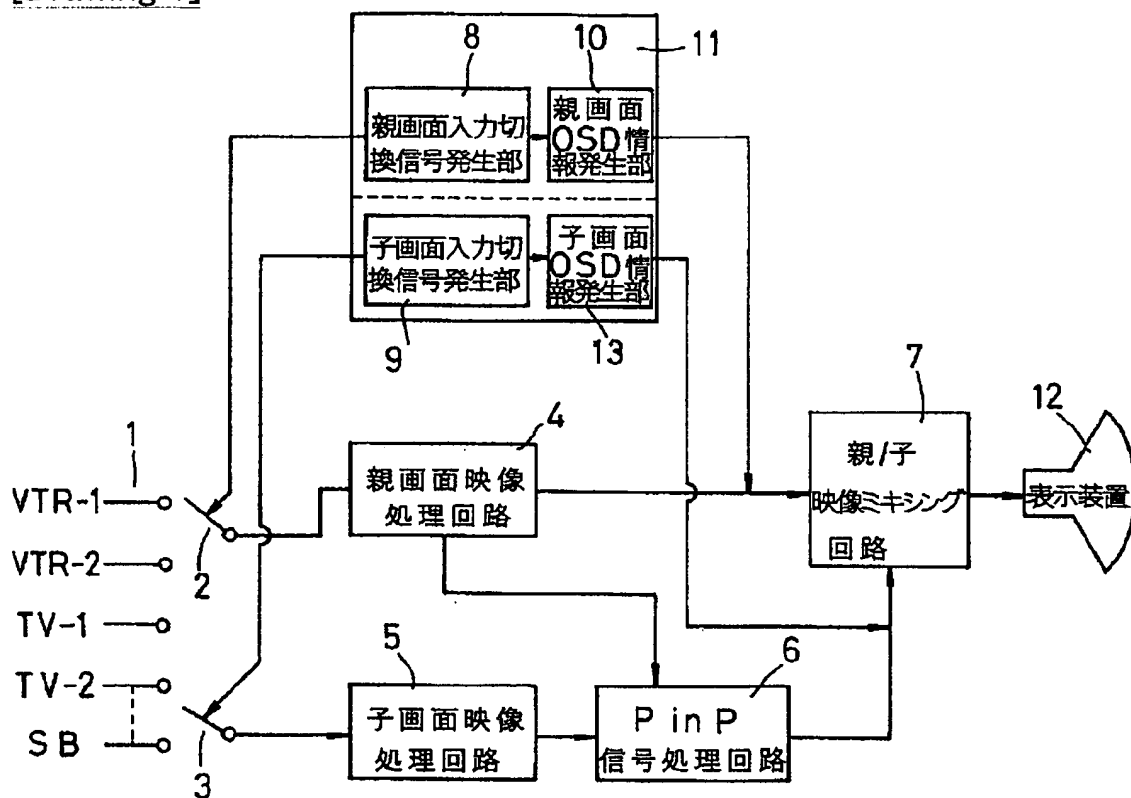
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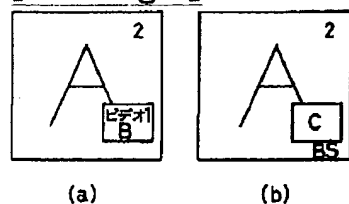
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## DRAWINGS

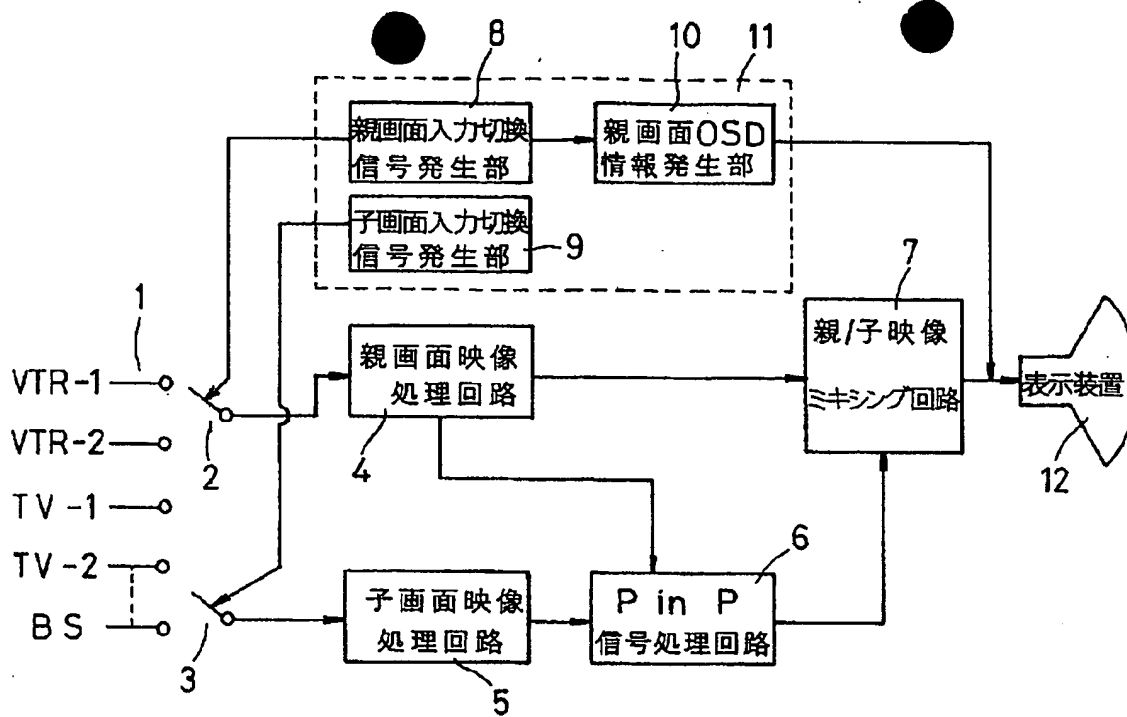
[Drawing 1]



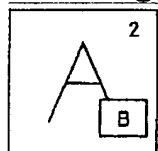
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]

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(19)日本国特許庁(JP)

(12) 公開特許公報(A)

(11)特許出願公開番号

特開平5-75948

(43)公開日 平成5年(1993)3月26日

(51)Int.Cl.<sup>5</sup>

H 0 4 N 5/45

識別記号

庁内整理番号

7037-5C

F I

技術表示箇所

審査請求 未請求 請求項の数1(全 4 頁)

(21)出願番号 特願平3-169270

(22)出願日 平成3年(1991)6月13日

(71)出願人 000005049

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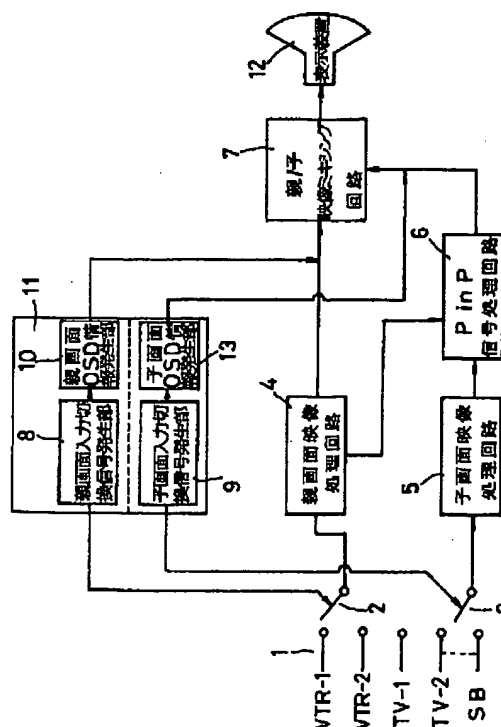
(74)代理人 弁理士 佐野 静夫

(54)【発明の名称】 映像表示装置

(57)【要約】

【目的】 親画面と同様に子画面の映像に対応する情報を表示させるようにする。

【構成】 親画面と同様に、子画面に表示される映像に対応した情報を表示画面の一部に表示させるように構成する。



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## 【特許請求の範囲】

【請求項1】 親画面上に子画面を表示させるようにした映像表示装置において、親画面に表示されている映像に対応した情報を表示画面の一部に表示する第1の表示手段と、子画面に表示されている映像に対応した情報を上記表示画面の一部に表示する第2の表示手段とを設けたことを特徴とする映像表示装置。

## 【発明の詳細な説明】

## 【0001】

【産業上の利用分野】本発明はテレビジョン受像機やVTRに用いる映像表示装置に関するものであり、特に親画面の一部に子画面を映す所謂ピクチャー・イン・ピクチャー（以下「PinP」という）方式の映像表示装置に関するものである。

## 【0002】

【従来の技術】最近テレビジョン受像機等の映像表示装置は、画面の大型化に伴い親画面の一部に子画面を表示するPinP方式のものが普及しつつある。このPinP方式の映像表示装置においては、親画面の表示情報が何であるかを示すキャラクター表示システム（on Screen Display 以下「OSD」という）を採用しているものが多い。

【0003】図3は従来装置のブロック図である。同図において、1はVTR-1、VTR-2、TV-1、TV-2、・・・BS（衛星放送）等種々のソースからの映像信号を入力する映像信号入力端子、2はマイコン11の親画面入力切換信号発生部8からの入力切換信号により上記映像信号入力端子1の何れかの端子を選択して、この選択した端子より得られるソースを親画面情報とする親画面入力セクター、3はマイコン11の子画面入力切換信号発生部9からの入力切換信号により上記映像信号入力端子1の何れかの端子を選択して、この選択した端子より得られるソースを子画面情報とする子画面入力セクターである。

【0004】4は親画面映像処理回路、5は子画面映像処理回路、6は親画面上に表示させる子画面の大きさと、子画面を親画面に重畳させる位置等により子画面の信号を処理するPinP信号処理回路、7は親画面上に子画面を重畳させる親/子映像ミキシング回路、10はマイコン11の親画面入力切換信号発生部8からの入力切換信号に基づき上記親画面入力セクター2で選択されたソースに対応する情報を発生させる親画面OSD情報発生部、12はブラウン管等の表示装置である。

【0005】従って外部からの指示でマイコン11の親画面入力切換信号発生部8及び子画面入力切換信号発生部9より発生する入力切換信号により、親画面入力セクター2及び子画面入力セクター3で選択されたそれぞれのソースは親画面映像処理回路4及び子画面映像処理回路5に導かれて映像信号の処理が行われる。子画面映像処理回路5からの出力はPinP信号処理回路6に

導かれ、該回路6で上記親画面映像処理回路4から同期信号に同期して親画面上に表示させる子画面の大きさ、及び子画面を親画面に重畳させる位置等により子画面の映像信号の信号処理を行い、親画面映像処理回路4からの出力と共に親/子映像ミキシング回路7に導き、該回路7で親子両映像信号のミキシングを行う。

【0006】一方、上記親画面入力セクター2で選択されたソースに対応する情報は親画面入力切換信号発生部8より親画面OSD情報発生部10に導かれ、上記セクター2が例えばテレビジョン信号の2チャンネル（TV-2）を選択している場合にはOSD情報として選択されたソースに対応する情報“2”を上記親画面OSD情報発生部10より出力する。親画面OSD情報発生部10からのOSD情報は、上記親/子映像ミキシング回路7からの出力に重畳され、表示装置12上に図4に示すように親画面の映像Aに子画面の映像Bを重畳し親画面上に親画面のOSD情報、即ちここではTVの第2チャンネルを示す“2”を重畳した形で表示する。

## 【0007】

【発明が解決しようとする課題】上記のように従来の装置においては親画面上に子画面を重畳させて表示した場合、親画面が何の画面であるかはOSD情報の表示で認識することができるが、子画面についてはOSD情報の表示が行われないため機器の利用者が子画面のチャンネル等を切り換えようとする場合等、子画面の映像内容しか判らずその映像内容がTVのものかVTRのものか、又TVならどのチャンネルか等が不明で子画面の操作が不便であった。

## 【0008】

【課題を解決するための手段】本発明は上記の問題を解決するため親画面上に子画面を表示させるようにした映像表示装置において、親画面に表示されている映像に対応した情報を表示画面の一部に表示する第1の表示手段と、子画面に表示されている映像に対応した情報を上記表示画面の一部に表示する第2の表示手段を設けた構成にする。

## 【0009】

【作用】上記の構成によれば、子画面に表示されている映像についても、親画面と同様、表示されている映像に対応したチャンネル等の情報が画面上に表示されるので、子画面のソース等もディスプレイ上で確認することができる。

## 【0010】

【実施例】図1は本発明の一実施例のブロック図であり、図3に示す従来例に対応する部分は同一符号を付し説明を省略する。図1において13はマイコン11の子画面入力切換信号発生部9から供給される入力切換信号に対応した情報、即ち子画面入力セクター3で選択されたソースに対応する情報を発生させる子画面OSD情報発生部であり、該子画面OSD情報発生部13より導

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出するOSD情報はPinP信号処理回路6の出力と共に親/子映像ミキシング回路7に導く。なお、図3に示す従来例では、親画面OSD情報発生部10の出力が親/子映像ミキシング回路7の出力に重畳されているが、図1においては親画面OSD情報発生部10の出力を親画面映像処理回路4の出力に重畳するようにしている。

【0011】従ってマイコン11内の子画面入力切換信号発生部9から供給される上記子画面入力セクター3で選択されたソースに対応する情報は子画面OSD情報発生部13に導かれ、上記セクター3が例えばVTR-1 10 あるいは衛星放送BSを選択している場合には、OSD情報として選択されたソースに対応する情報“ビデオ-1”或いは“BS”を上記子画面OSD情報発生部13より出力する。子画面OSD情報発生部13からのOSD情報はPinP信号処理回路6からの出力に重畳され親/子映像ミキシング回路7に導かれる。

【0012】一方、親画面映像処理回路4からの親画面映像信号は、親画面OSD情報発生部10からの親画面のOSD情報と重畳され、親/子映像ミキシング回路7に導かれており、該ミキシング回路7で上記PinP信 20 号処理回路6からの子画面映像信号に子画面OSD情報発生部13からの子画面のOSD情報が重畳された信号と混合され、表示装置12に導かれて表示される。

【0013】その結果、表示装置12には図2(a)或\*

\*いは(b)に示すように、親画面AのOSD情報“2”と共に子画面B或いはCのOSD情報“ビデオ-1”或いは“BS”を表示させることができる。図2(a)は子画面BのOSD情報“ビデオ-1”を子画面内に表示させた例であり、図2(b)は子画面CのOSD情報“BS”を子画面外で親画面上の子画面に近い位置に表示させた例である。

【0014】

【発明の効果】本発明は以上のような構成であるので親画面と同様子画面についても表示されている映像に対応する情報を表示装置上に表示することができるので、利用者が子画面に何の映像が映出されているかを確認できると共に子画面のチャンネル切換等の操作をする場合にも子画面の操作が容易になる。

【図面の簡単な説明】

【図1】 本発明の一実施例のブロック図。

【図2】 本発明の動作説明図。

【図3】 従来例のブロック図。

【図4】 従来例の表示例。

【符号の説明】

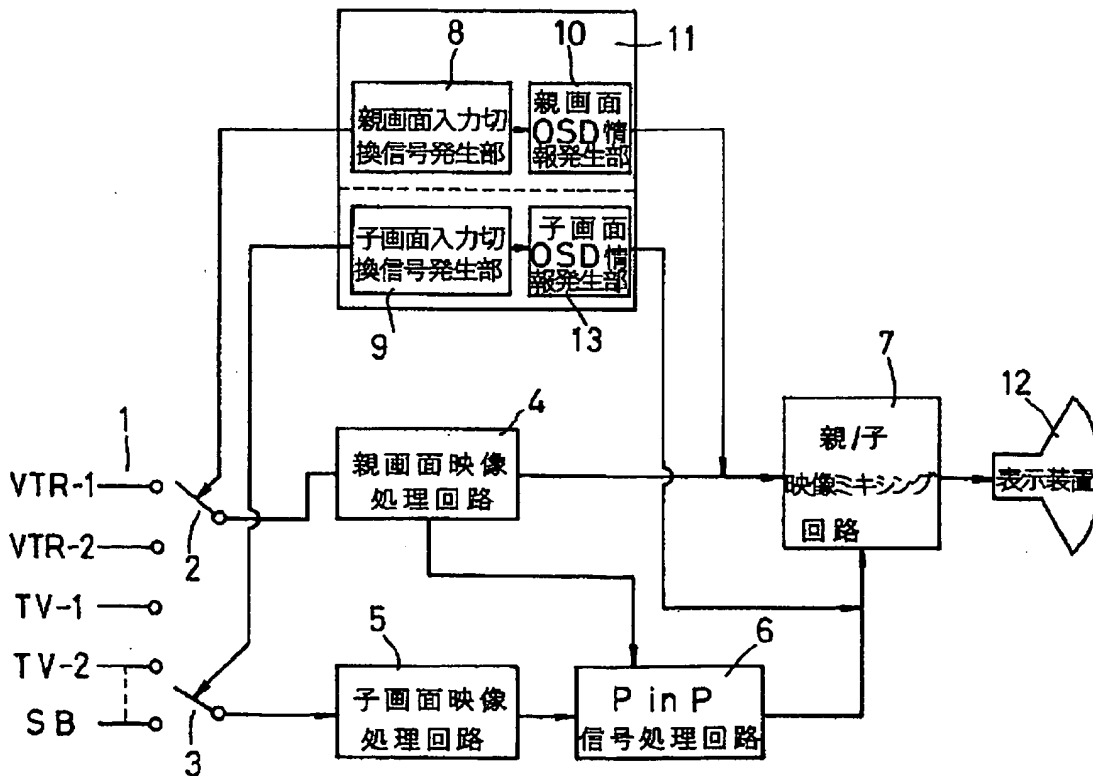
7 親/子映像ミキシング回路

10 親画面OSD情報発生部

12 表示装置

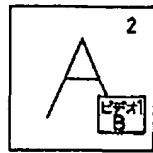
13 子画面OSD情報発生部

【図1】

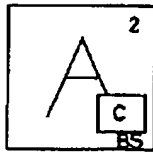


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【図2】

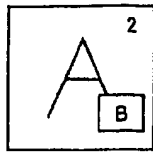


(a)

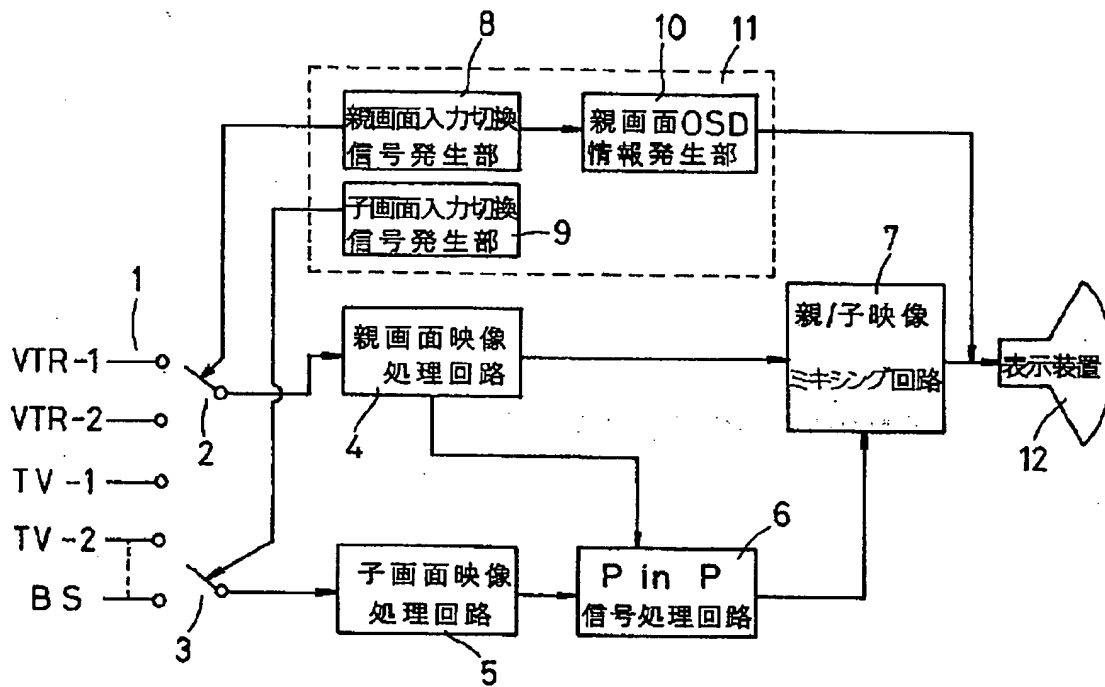


(b)

【図4】



【図3】



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